Amendments to th Claims:

80. (Currently Amended) A method of analyzing a sample in an integrated microfluidic device having at least two chambers in fluid communication, comprising:

providing an integrated microfluidic device having at least two separate chambers in fluid communication;

supplying the sample into a first chamber of the integrated microfluidic device, wherein the first chamber is selected from the group of chambers adapted to perform a preparative reaction, an analysis reaction, sample acquisition, DNA extraction, amplification, IV transcription or labeling;

performing a first reaction in the first chamber;

moving the sample from the first chamber to the second chamber, wherein the second chamber is selected from the group of chambers adapted to perform a preparative reaction, an analysis reaction including hybridization, sample acquisition, DNA extraction, amplification, IV transcription or labeling;

performing a second reaction in the second chamber, the second reaction being different from the first reaction;

performing hybridization in one of said chambers;

performing confocal microscopy on the hybridized sample by detecting an optical signal from the hybridized sample inside of the chamber using a reader device located outside of the chamber;

receiving a signal output from the reader device; and

analyzing the signal output with a digital computer to indicate a property of the sample based on the confocal microscopy.

81. (Previously Presented) The method of claim 80, wherein the preparative reaction comprises:

a reaction selected from the group of reactions consisting of sample extraction, PCR amplification, extraction of intracellular material, nucleic acid fragmentation, labeling, extension reactions and transcription reactions.

82. (Previously Presented) The method of claim 80, wherein the analysis reaction comprises:

a reaction selected from the group of reactions consisting of size based analysis or sequence based analysis.

83. (Currently Amended) The method of claim 82, wherein the size based analysis comprises microcapillary electrophoresis.

84. (Currently Amended) The method of claim 80 [82], wherein the [sequence based analysis comprises] hybridization includes hybridization of fluorescently labeled targets located in the sample to a nucleic acid array.

85. (Previously Presented) The method of claim 80, wherein the sample acquisition comprises:

a reaction selected from the group of reactions consisting of neutralizing an infectious agent or performing a pH adjustment.

86. (Previously Presented) The method of claim 85, wherein neutralizing an infectious agent comprises introduction of heparin, buffering agents, protease or nuclease inhibitors or preservatives.

87. (Previously Presented) The method of claim 80, wherein DNA extraction comprises:

a reaction for extracting DNA selected from the group of reactions consisting of denaturing of contaminating (DNA binding) proteins, purification, filtration or desalting.

88. (Previously Presented) The method of claim 80, wherein amplification or IV transcription comprise:

a reaction selected from the group of reactions consisting of PCR, LCR, 3SR, NASBA.

89. (Previously Presented) The method of claim 80, wherein labeling comprises: incorporating a label into the amplified or transcribed sequence.

90. (Previously Presented) The method of claim 80, wherein labeling comprises: labeling primers.

91. (Previously Presented) The method of claim 80, wherein labeling comprises: incorporation of labeled dNTPs into an amplified sequence.

92. (Previously Presented) The method of claim 80, wherein labeling comprises: covalent attachment of a particular detectable group upon the amplified sequence.

93. (Currently Amended) A method of analyzing a sample in an integrated microfluidic device having at least three chambers in fluid communication, comprising:

providing an integrated microfluidic device having at least three separate chambers in fluid communication;

supplying the sample into a first chamber of the integrated microfluidic device, wherein the first chamber is selected from the group of chambers adapted to perform a preparative reaction, an analysis reaction, sample acquisition, DNA extraction, amplification, IV transcription or labeling;

performing a first reaction in the first chamber;

moving the sample to the second chamber, wherein the second chamber is selected from the group of chambers adapted to perform a preparative reaction, an analysis reaction including hybridization, sample acquisition, DNA extraction, amplification, IV transcription or labeling;

performing a second reaction in the second chamber, the second reaction being different from the first reaction;

moving the sample to the third chamber, wherein the third chamber is selected from the group of chambers adapted to perform a preparative reaction, an analysis reaction, sample acquisition, DNA extraction, amplification, IV transcription or labeling;

performing a third reaction in the third chamber, the third reaction being different from both the first and second reactions;

performing hybridization in one of said chambers;

performing confocal microscopy on the hybridized sample by detecting an optical signal from the hybridized sample inside of the chamber using a reader device located outside of the chamber;

receiving a signal output from the reader device; and

analyzing the signal output with a digital computer to indicate a property of the sample.

94. (Previously Presented) The method of claim 93, wherein the preparative reaction comprises:

a reaction selected from the group of reactions consisting of sample extraction, PCR amplification, extraction of intracellular material, nucleic acid fragmentation, labeling, extension reactions and transcription reactions.

95. (Previously Presented) The method of claim 93, wherein the analysis reaction comprises:

a reaction selected from the group of reactions consisting of size based analysis or sequence based analysis.

96. (Currently Amended) The method of claim 95, wherein the size based analysis comprises microcapillary electrophoresis.

97. (Currently Amended) The method of claim 95, wherein the confocal microscopy comprises detecting an optical signal from a fluorescently labeled targets located inside the chamber [device].

98. (Previously Presented) The method of claim 93, wherein sample acquisition reactions comprise:

a reaction selected from the group of reactions consisting of neutralizing an infectious agent or performing a pH adjustment.

99. (Previously Presented) The method of claim 98, wherein neutralizing infectious agents comprises introduction of heparin, buffering agents, protease or nuclease inhibitors or preservatives.

100. (Previously Presented) The method of claim 93, wherein DNA extraction comprises:

a reaction for extracting DNA selected from the group of reactions consisting of denaturing of contaminating (DNA binding) proteins, purification, filtration or desalting.

101. (Previously Presented) The method of claim 93, wherein amplification or IV transcription comprise:

a reaction selected from the group of reactions consisting of PCR, LCR, 3SR, NASBA.

102. (Previously Presented) The method of claim 93, wherein labeling comprises: incorporating a label into the amplified or transcribed sequence.

103. (Previously Presented) The method of claim 93, wherein labeling comprises: labeling primers.

104. (Previously Presented) The method of claim 93, wherein labeling comprises: incorporation of labeled dNTPs into an amplified sequence.

105. (Previously Presented) The method of claim 93, wherein labeling comprises: covalent attachment of a particular detectable group upon the amplified sequence.

106. (Currently Amended) A method of analyzing a sample in an integrated microfluidic device, comprising:

providing an integrated microfluidic device having at least two separate chambers;

supplying the sample into a first chamber selected from the group consisting of a chamber adapted to perform a preparative reaction, an analysis reaction, sample acquisition, DNA extraction, amplification, IV transcription or labeling;

moving the sample from the first chamber to a second chamber by employing a valve located in a channel between the first chamber and the second chamber, the second chamber being selected from the group consisting of a chamber adapted to

perform a preparative reaction, an analysis reaction, sample acquisition, DNA extraction, amplification, IV transcription or labeling; and

receiving a signal output from a reader device and indicating a property of the sample.

107. (Currently Amended) A method of analyzing a sample in an integrated microfluidic device, comprising:

providing an integrated microfluidic device having at least three separate chambers;

supplying the sample into a first chamber selected from the group consisting of a chamber adapted to perform a preparative reaction, an analysis reaction, sample acquisition, DNA extraction, amplification, IV transcription or labeling;

moving the sample from the first chamber to a second by employing a first valve located in a first channel between the first chamber and the second chamber, the second chamber being selected from the group consisting of a chamber adapted to perform a preparative reaction, an analysis reactions, sample acquisition, DNA extraction, amplification, IV transcription or labeling;

moving the sample from the second chamber to a third chamber by employing a second valve located in a second channel between the second chamber and the third chamber, the second chamber, the third chamber being selected from the group consisting of a chamber adapted to perform a preparative reaction, an analysis reactions, sample acquisition, DNA extraction, amplification, IV transcription or labeling; and

receiving a signal output from a reader device and indicating a property of the sample.

108. (Previously Presented) The method of claim 106, wherein said supplying includes placing the integrated microfluidic device in contact with a reusable base unit and supplying pressure by the reusable base unit.

109. (Previously Presented) The method of claim 107, wherein said supplying includes placing the integrated microfluidic device in contact with a reusable base unit and supplying pressure by the reusable base unit for moving the sample from the first chamber to the second chamber and for moving the sample from the second chamber to the third chamber.

110. (Previously Presented) The method of claim 80, wherein said microfluidic device includes a probe array immobilized on an internal surface and said performing confocal microscopy detecting the hybridized sample on the probe array.

111. (Previously Presented) The method of claim 80, wherein the performing confocal microscopy includes performing scanning confocal microscopy.

112. (Previously Presented) The method of claim 110, wherein the internal surface forms a wall of one of said chambers and said wall includes at least partially transparent substrate having said probe array immobilized thereon.

113. (Previously Presented) The method of claim 80, wherein said receiving of the sample in the second chamber includes using a fluid channel being about 20 μm to about 1000 μm wide.

114. (Previously Presented) The method of claim 93, wherein said microfluidic device includes a probe array immobilized on an internal surface and said performing confocal microscopy detecting the hybridized sample on the probe array.

115. (Previously Presented) The method of claim 93, wherein the performing confocal microscopy includes performing scanning confocal microscopy.

116. (Previously Presented) The method of claim 114, wherein the internal surface forms a wall of one of said chambers and said wall includes at least partially transparent substrate having said probe array immobilized thereon.

117. (Previously Presented) The method of claim 93, wherein said receiving of the sample in the second chamber includes using a fluid channel being about 20 μm to about 1000 μm wide.

118. (Previously Presented) The method of claim 80, further includes using a fluid transport system connectable the reaction chambers and thereby forming said integrated microfluidic device.

119. (Previously Presented) The method of claim 118, wherein the hybridization includes mixing the sample by moving the sample.

Claim 119 (second occurrence) cancelled herein.

120. (Previously Presented) The method of claim 80, further includes employing a valve located between two of said chambers.

121. (Previously Presented) The method of claim 93, further includes using a fluid transport system connectable the reaction chambers and thereby forming said integrated microfluidic device.

122. (Previously Presented) The method of claim 121, wherein the hybridization includes mixing the sample by moving the sample.

123. (Previously Presented) The method of claim 121, wherein the hybridization includes creating sonic vibrations.

124. (Previously Presented) The method of claim 93, further includes employing a valve located between two of said chambers.

125. (New) The method of claim 118, wherein the hybridization includes creating sonic vibrations.